

**WHAT IS CLAIMED IS:**

1. A method of communicating a facsimile over a network having two endpoint fax relay gateways and at least two inner fax relay gateways, comprising:

- (a) identifying at least two inner fax relay gateways; and
- (b) placing the two inner fax relay gateways in a fax-bypass mode wherein the two inner fax relay gateways relay fax information without modulation and demodulation of the information.

2. A method as set forth in claim 1, wherein in step (a) voice channels are used to identify the inner fax relay gateways.

3. A method as set forth in claim 1, wherein in step (b) fax information is relayed by inserting digital information into a PCM (pulse code modulation) stream.

4. A method as set forth in claim 1, wherein step (b) includes monitoring an error rate of transmission of information in the PCM stream and placing the two inner fax relay gateways in a non-fax-bypass mode if the error rate is too high.

5. A network for communicating a facsimile, comprising:  
a plurality of fax relay gateways, wherein at least two of the fax relay gateways can be placed in a fax-bypass mode wherein the two fax relay gateways relay fax information without modulation and demodulation of the information.

6. A network as set forth in claim 5, wherein each of the two fax relay gateways include a fax relay bypass detector.

7. A network as set forth in claim 6, wherein the fax relay bypass detectors employ voice channels.

8. A network as set forth in claim 5, wherein at least one of the two fax relay gateways relays fax information by inserting digital information into a PCM (pulse code modulation) stream.

9. A network as set forth in claim 8, wherein the two fax relay gateways monitor an error rate of transmission of information in the PCM stream and place the two fax relay gateways in a non-fax-bypass mode if the error rate is too high.

10. A fax relay gateway comprising:

a relay path for a normal mode of relaying information wherein fax information is relayed with at least one of modulation and demodulation of the information; and

a second relay path for a fax-bypass mode wherein the fax relay gateway relays fax information without modulation and demodulation of the information.

11. A fax relay gateway as set forth in claim 10, wherein the fax relay gateway includes a fax relay bypass detector.

12. A fax relay gateway as set forth in claim 11, wherein the fax relay bypass detector employs voice channels.

13. A fax relay gateway as set forth in claim 10, wherein the fax relay gateway relays fax information by inserting digital information into a PCM (pulse code modulation) stream.

14. A fax relay gateway as set forth in claim 13, wherein the fax relay gateway monitors an error rate of transmission of information in the PCM stream and places the fax relay gateway in the normal mode if the error rate is too high.